

What is claimed is:

1. An object relative status determination system for a vehicle comprising:
 - at least one orthogonal frequency domain modulation (OFDM) transceiver generating a plurality of object range signals; and
 - at least one controller coupled to said at least one OFDM transceiver and determining object information relative to the vehicle in response to said plurality of object range signals.
- 10 2. A system as in claim 1 wherein said controller is coupled to a vehicle network.
3. A system as in claim 2 wherein said vehicle network comprises:
 - a head vehicle;
 - 15 at least one middle vehicle; and
 - a tail vehicle.
4. An object relative status determination system for at least one vehicle comprising:
 - 20 at least one OFDM transceiver generating at least one object range signal;
 - at least one global navigation system (GNS) receiving at least one satellite range signal; and
 - 25 at least one controller coupled to said at least one OFDM transceiver and said at least one GPS and determining object information relative to a host vehicle in response to said at least one satellite range signal and said at least one object range signal.
- 30 5. A system as in claim 4 wherein said at least one OFDM transceiver comprises:

a first OFDM transceiver coupled within said host vehicle and generating a first object range signal; and

5 a second OFDM transceiver coupled within the object and generating a second object range signal.

6. A system as in claim 4 wherein said at least one GNS comprises:

10 a first GPS coupled within said host vehicle and receiving a first set of satellite range signals; and

a second GPS coupled within an object and receiving a second set of satellite range signals.

7. A system as in claim 4 wherein said at 15 least one controller determines relative range of at least one object with respect to said host vehicle in response to said at least one satellite range signal and said at least one object range signal.

8. A system as in claim 4 wherein said at 20 least one controller determines relative velocity of at least one object with respect to said host vehicle in response to said at least one satellite range signal and said at least one object range signal.

9. A system as in claim 4 wherein said at 25 least one GNS comprises:

at least one GPS antenna;

at least one radio frequency unit; and

at least one digital signal processor.

10. A system as in claim 4 wherein said at 30 least one controller is coupled to a vehicle network.

11. A system as in claim 10 wherein said vehicle network comprises a platoon of vehicles.

12. A system as in claim 4 wherein said at least one GNS receives a plurality of satellite range signals from a plurality of satellites.

5 13. A system as in claim 4 wherein said at least one GNS receives said at least one satellite range signal from at least one GPS satellite.

10 14. A system as in claim 4 wherein said at least one GNS receives said at least one satellite range signal from at least one navy navigation satellite system (NAVSAT) satellite.

15 15. A system as in claim 4 wherein said at least one controller determines said object information relative to said host vehicle in response to a single satellite range signal and a single object range signal.

16. A system as in claim 4 wherein said at least one controller determines said object information relative to said host vehicle in response to a plurality of object range signals.

20 17. A system as in claim 4 wherein said at least one OFDM transceivers comprise:

a first OFDM transceiver coupled within said host vehicle; and

25 a second OFDM transceiver coupled within an object and in synchronization with said first OFDM transceiver.

18. A method of determining object information relative to a vehicle comprising:

30 receiving at least one satellite range signal;

generating at least one object range signal utilizing at least one OFDM transceiver; and

determining object information relative to the vehicle in response to said at least one satellite range signal and said at least one object range signal.

5 19. A method as in claim 18 further comprising:

determining range of a plurality of satellites relative to the vehicle;

10 determining range of a plurality of satellites relative to an object; and

determining range between the vehicle and the object utilizing said at least one OFDM transceiver.

15 20. A method as in claim 18 further comprising:

determining range and rate of change in range between the vehicle and at least one satellite; and

20 determining range and rate of change in range between the vehicle and at least one object via said at least one OFDM transceiver.